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Northern resource trucking

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NORTHERN RESOURCE TRUCKING

Central Tire Inflation Technology Allows Firm to Carry Bigger Payloads



In cooperation with the provincial department of highways, Northern Resource Trucking of Saskatchewan is using central tire inflation technology to carry bigger payloads over some of the province's secondary highways. After testing the technology on a single route, the company is now planning more installations.

Secondary highway system presents a payload challenge

Saskatchewan's major resource industries – agriculture, mining, petroleum and forestry – rely heavily on truck transportation to move their products to markets.

Often, these industries are located in isolated areas of the province accessed only by gravel or surface-treated roads that were not built for heavy-duty hauling.

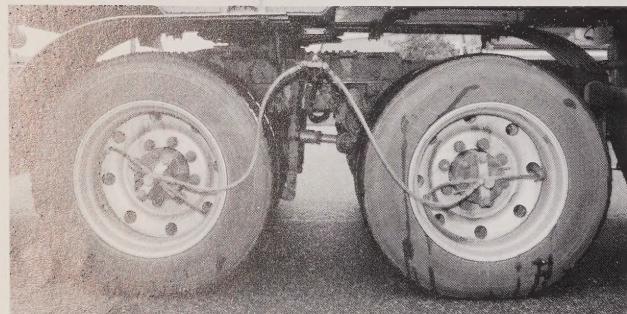
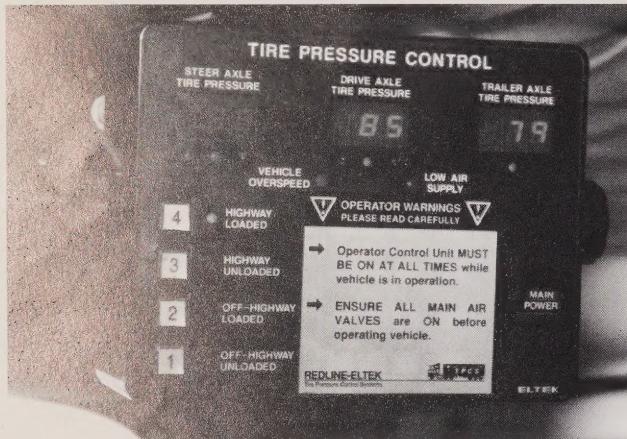
Such is the case for the remote northern mines serviced by Northern Resource Trucking (NRT). These mines are located at the end of a long series of thin-paved and gravel roads, most of which are classified as secondary highways and have a maximum gross vehicle weight (GVW) of 54 500 kilograms. This presents the company with a payload problem, since many of the vehicles used on these routes, if fully loaded, would exceed the GVW.

A potential solution lies in NRT's use of central tire inflation (CTI) technology. CTI enables a vehicle's tire pressure to be increased or lowered from the cab while travelling at any speed, effectively allowing the driver to change the "footprint" of the tires to suit the load and road conditions. Lower tire pressures result in a larger footprint, a smoother ride and, most importantly from a payload perspective, less damage to the road. In Saskatchewan, that means trucks equipped with CTI may be permitted to carry heavier payloads than would otherwise be the case.

Payback in less than a year

The CTI equipment used by NRT is a two-zone system that allows the drive axle tires to be controlled separately from the trailer tires. This enables the driver to lower drive axle tire pressures to improve traction in poor driving conditions or emergency situations without affecting trailer tire pressures.

NRT also opted for a high-capacity compressor, as well as two air dryers to ensure that the system is not contaminated by moisture and lubricants.



The total installed cost of the CTI equipment on the nine-axle tanker was \$38,000. Based on two return trips per week, the technology is reducing the vehicle's travel distance by approximately 40 000 kilometres per year, which works out to about \$50,000 in fuel, maintenance and labour cost savings. In other words, the simple payback for the equipment is less than one year.

The Lloydminster-Key Lake run

NRT chose its twice-per-week run to deliver liquid sulphur from Lloydminster to the Key Lake mine in northern Saskatchewan as a test route for CTI technology. The run uses a nine-axle, B-train tanker unit that has a maximum GVW of 72 500 kilograms on the primary highway system. The most direct route for the Lloydminster-Key Lake run is 684 kilometres, but parts of this route have a 54 500 kilogram GVW limit. The alternative is a route that is significantly longer but allows the full 72 500 kilogram GVW.

Through an agreement with Saskatchewan Highways and Transportation, NRT is using CTI to carry the maximum payload over the shortest route - a measure that has reduced the total travelling distance by 400 kilometres per round trip.

Working with provincial officials and the CTI equipment supplier, NRT has determined the optimum tire pressure for each segment of the 684 kilometre route. On secondary roads, the driver lowers the tire pressure to 60 to 65 pounds per square inch (even lower when the tanker is empty), and then increases it to a normal pressure of 85 to 90 pounds per square inch on primary highways - without ever leaving the cab.

Impressive fuel savings and other benefits

NRT officials estimate the use of CTI technology on the Lloydminster-Key Lake run will save the company 19 600 litres of diesel fuel per year (based on a fuel consumption rate of 51.4 litres per 100 kilometres). If the alternative route were not available, the fuel savings would be even greater. That's because without CTI, the company would be limited to a maximum GVW of 54 500 kilograms on the 684 kilometre run, which would reduce the payload from 47.5 tonnes to 29.6 tonnes. CTI allows for an increase in payload of almost 18 tonnes, or 60 percent, which means fewer trips are required.

After some initial scepticism about CTI technology, Roger Olyowsky, general manager of NRT, has become a believer. The company now plans to install a CTI unit on a second nine-axle tanker that operates on the Lloydminster-Key Lake route, and is considering converting a number of eight-axle units that haul general freight to another northern mine.



Mr. Olyowsky cites benefits other than the increased payload and reduced fuel and labour costs. At the top of the list is longer trailer life. Reducing tire pressures has improved the ride for empty trailers, which normally take a severe beating on rough roads. The improved cab ride and traction provided by lower tire pressures is also reducing driver fatigue and improving safety. Mr. Olyowsky estimates that tires last 25 percent longer with CTI (due to less damage inflicted by gravel roads) and reports that after six months of operation, the CTI-equipped truck has experienced minimal maintenance or operational problems.

The future of CTI in Saskatchewan

CTI means more than cost savings for NRT and its clients. The technology is also minimizing the impact of heavy-duty vehicles on the road infrastructure – and that means lower road construction and maintenance costs for the provincial government. In fact, Saskatchewan Highways and Transportation is encouraging all trucking companies to use CTI as a simple and cost-effective way to carry bigger payloads over much of the province's massive road network.



For more information on energy-saving opportunities for fleets, please write to

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ISBN: 0-662-27246-3
Cat. no.: M91-24/35-1998E



Office of Energy Efficiency
Office de l'efficacité énergétique

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Cette publication est également disponible en français.

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